



Roy F. Weston, Inc.
Suite 5700
700 5th Avenue
Seattle, Washington 98104-5057
206-521-7600 • Fax 206-521-7601

MEMORANDUM

DATE: 1 December 1998

TO: David Bennett, WAM, U.S. EPA, Region X

FROM: Michelle Turner, Chemist, WESTON, Seattle
RM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Organotin Data
Laboratory Batch: K9805485
Site: Duwamish River

WORK ASSIGNMENT NO: 46-35-0JZZ

WORK ORDER NO.: 4000-019-038-5200-00

DOC. CONTROL NO.: 4000-019-038-AAAK

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Dena Hughes, Site Manager, WESTON, Seattle (memo only)
Kevin Mundell-Jackson, Database Management, WESTON

The quality assurance review of two sediment samples, laboratory batch K9805485, collected from the Duwamish River has been completed. The sediment samples were analyzed for organotins by Columbia Analytical Services of Kelso, Washington. Samples were analyzed by gas chromatography with an FPD detector. The samples were numbered:

98334057 98334060

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract. The review follows the format described in the *National Functional Guidelines for Organic Data Review* (EPA OSWER Directive 9240.1, February 1994), modified to include specific requirements of analytical methods.

This document was prepared by Roy F. Weston, Inc. expressly for the EPA. It shall not be disclosed in whole or in part without the express, written permission of the EPA.

98-0627J 006
DCN 4000-019-038-AAAK

1 December 1998
Region X



Click to WESTON On The Web <http://www.rfweston.com>



QA Review Batch K9805485 (Organotin)

Site: Duwamish River

Page 2

1. Timeliness

Holding time limits of 7 days for sample extraction and additional 7 days for analysis were established in the project Sampling and Analysis plan. All samples met holding time criteria.

2. Detection Limits—Acceptable

Instrument detection limits met project required quantitation limits.

3 Initial Calibration

A six-point initial calibration was performed prior to each analytical batch. The percent relative standard deviation for the initial calibration was within limits of less than 25 percent RSD.

4. Continuing Calibrations

Continuing calibration check was performed after every 10 samples. All target analytes were within required limits for the continuing calibrations with the percent difference for a mid-range standard less than 25 percent.

5. Blanks

a) Laboratory Method Blanks

Laboratory method blank frequency criteria were met. No target analytes were reported in laboratory method blanks.

b) Field Blanks

No field blanks were associated with this SDG.

6 Surrogate Compound Recovery

Surrogate recovery goals for tri-n-propyltin were established in the project Sampling and Analysis Plan at 60 to 120 percent for both sediment and porewater. Based on conversations with the laboratory an additional surrogate, triphenyltin was added and

This document was prepared by Roy F. Weston, Inc. expressly for the EPA. It shall not be disclosed in whole or in part without the express, written permission of the EPA.

QA Review Batch K9805485 (Organotin)

Site Duwamish River

Page 3

historical laboratory control chart limits were also used for data qualification. Laboratory limits are presented below:

Surrogate Compound	Sediment Limits	Porewater Limits
Tripropyltin	20 - 195%	20 - 113%
Triphenyltin	20 - 175%	20 - 133%

Surrogate compound percent recovery met quality control criteria for all samples, with the exception of the following:

Sample	Surrogate	Percent Recovery
K980818-LCS	Triphenyltin	59

Sample results are qualified as estimated (J) when both surrogate recoveries are outside project limits. As only one surrogate was outside QC limits, no qualifiers were assigned to sample results

7 Laboratory Control Sample (LCS)

LCS recovery goals for butyltins were established in the project Sampling and Analysis Plan at 60 to 130% for both sediment and porewater. Based on conversations with the laboratory, historical control chart limits of 20 to 138 percent for water and 20 to 164 percent for sediment were also used for data qualification.

All laboratory control sample percent recoveries met QC guidelines (P-project, L-laboratory), with the exception of the following.

LCS	Analyte	Percent Recovery	QC Limit	Associated Samples
K980818-LCS	n-Butyltin	20	60-130 (P) 20-164 (L)	98334057 98334060

Sample results for n-Butyltin were qualified as estimated (J) when LCS recoveries were outside project limits. Undetected results for n-Butyltin were qualified as estimated (UJ) when LCS recoveries were outside project limits

QA Review Batch K9805485 (Organotin)

Site. Duwamish River

Page 4

8. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

The following matrix spike recovery goals were established in the project Sampling and Analysis Plan at for both sediment and porewater.

Analyte	% Recovery
Tri-n-butyltin	40 - 120%
Di-n-butyltin	30 - 120%
n-Butyltin	10 - 120%

MS/MSD sample percent recoveries and relative percent differences (RPDs) in the batch QC met QC guidelines, with the exception of the following.

Analyte	MS %R	MSD %R	RPD	Associated Samples
n-Butyltin	155	91	30	98334057 98334060

Additionally, MS/MSD sample percent recoveries and relative percent differences (RPDs) for Tri-n-Butyltin and Di-n-Butyltin were not calculated due to high analyte concentrations in the sample. Results were not qualified solely on matrix spike/matrix spike duplicate results.

9. Field Duplicate Analysis

No field duplicates were associated with this SDG.

10 Sample Analysis

A cursory review of raw data was performed. All results were verified on a second, dissimilar, confirmation GC column. No unusual problems were noted. The case narrative noted high RPD values for di-n-butyltin in replicate analyses for batch QC. The batch QC samples were rederivatized and reanalyzed, similar RPD results were obtained. The matrix spike and matrix spike duplicate recoveries for Di-n-butyltin and Tri-n-butyl tin in the batch QC were not calculated due to high analyte levels in the sample. No other problems were noted.

This document was prepared by Roy F. Weston, Inc. expressly for the EPA. It shall not be disclosed in whole or in part without the express, written permission of the EPA.



QA Review Batch K9805485 (Organotin)

Site Duwamish River

Page 5

11 Laboratory Contact

No laboratory contact was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

- U - The compound was analyzed for, but was not detected.
- UJ - The compound was analyzed for, but was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.
- J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported are less than the quantitation limit or lowest calibration standard.
- R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.
- N - Presumptive evidence of presence of material (tentative identification).

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Roy F Weston, Inc
Project: Duwamish River/4000-027-001-2019-38
Sample Matrix: Sediment

Service Request: K9805485
Date Collected: 8/13/98
Date Received: 8/14/98

Butyltins

Sample Name 98334057
Lab Code K9805485-001
Test Notes D

Units ug/Kg (ppb)
Basis Dry

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Tetra-n-butyltin	Method	Butyltins	5	5	8/18/98	8/22/98	ND	
Tri-n-butyltin	Method	Butyltins	5	5	8/18/98	8/22/98	24	
Di-n-butyltin	Method	Butyltins	5	5	8/18/98	8/22/98	8	
n-Butyltin	Method	Butyltins	5	5	8/18/98	8/22/98	6	J

D The MRL is elevated because of matrix interferences and because the sample required diluting

Approved By



Date

9/23/98

1S22/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Roy F Weston, Inc
Project: Duwamish River/4000-027-001-2019-38
Sample Matrix: Sediment

Service Request: K9805485
Date Collected: 8/13/98
Date Received: 8/14/98

Butyltins

Sample Name: 98334060
Lab Code: K9805485-004
Test Notes: D

Units: ug/Kg (ppb)
Basis: Dry

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Tetra-n-butyltin	Method	Butyltins	5	5	8/18/98	8/22/98	ND	
Tri-n-butyltin	Method	Butyltins	5	5	8/18/98	8/22/98	21	
Di-n-butyltin	Method	Butyltins	5	5	8/18/98	8/22/98	6	
n-Butyltin	Method	Butyltins	5	5	8/18/98	8/22/98	5 J	

D

The MRL is elevated because of matrix interferences and because the sample required diluting

Approved By. _____



Date. _____

9/23/98

IS22/020597p

05485SVG.JGI - 2 9/23/98

00028